

CLAIMS

WHAT IS CLAIMED:

1. An apparatus for manufacturing a disk rotor, comprising:
 - means for charging and pressurizing molten metal in a cavity that is defined at least in part by first and second metal molds that are disposed for movement into and out of contact with each other, at least one pre-form being supported and secured in said cavity;
 - wherein at least one of said first and second metal molds further includes supporting means having a supporting part for supporting a marginal portion of said pre-form;
 - wherein said supporting means may assume a first state in which said pre-form may be guided to a preset site and a second state in which said cavity may be formed; and
 - wherein said supporting part supporting the marginal portion of said pre-form by said supporting means assumes said second state.
2. An apparatus for manufacturing a disk rotor by charging and pressurizing molten metal in a cavity defined by first and second metal molds disposed for movement into and out of contact with each other, during a pre-form is supported and secured in said cavity, wherein
 - at least one of said first and second metal molds comprises a main body part of the mold, movable between at least a first position and a second position, and supporting means for supporting a marginal portion of said pre-form and for sliding in a direction of intersecting the direction of movement of said main body part of the mold;
 - said pre-form can be guided to a preset site when the main body part of the mold is in said first position;
 - said supporting means forming a portion of said cavity and supporting the marginal portion of said pre-form when the main body part of the mold is at said second position.
3. An apparatus for manufacturing a disk rotor comprising a first metal mold and a second metal mold disposed for movement into and out of contact with said first metal mold, in which molten metal is charged and pressurized in a cavity defined by said

first and second metal molds during at least one pre-form is supported and secured in said cavity to produce the disk rotor, wherein

said first metal mold comprises,

a main body part of the mold, movable between at least a first position and a second position,

a plurality of inclined guides supported and secured for extending in a direction of intersecting a direction of movement of said main body part of the mold, at an angle of inclination, and

a plurality of supporting means for supporting a marginal portion of the pre-form, said supporting means comprising insertion through-holes extending along said inclined guides, said inclined guides being introduced into said insertion through-holes;

wherein said supporting means assuming a first state to guide said pre-form to a preset site when said main body part of the mold is at said first position; and

wherein said supporting means forming a portion of said cavity and assuming a second state to support the marginal portion of said pre-form when said main body part of the mold is at said second position.

4. The apparatus for manufacturing a disk rotor as defined in any of claims 1 to 3 wherein said support means is adapted for supporting the marginal portions of two pre-forms which are in a state of being separated from each other.

5. A method for manufacturing a disk rotor comprising;

a pre-form supporting step of supporting and securing a pre-form at a preset site of a first metal mold during a second metal mold is separated from said first metal mold; and

a molding step of charging and pressuring molten metal in a cavity defined between the first and second molds during said second metal mold is contacted with said first metal mold, by way of mold clamping;

providing a movable main body part of the first metal mold;

providing a supporting member assuming a second state in contact with said main body part of the metal mold and a first state slidable towards an outer periphery with respect to said second state, wherein in the pre-form supporting step, said main body part of the metal mold is located at a preset position to set the first state

of said supporting member to guide said pre-form to a preset position; said main body part of the metal mold then being located at another preset position to set said supporting member in the second state; a marginal portion of said disk rotor being supported and secured in said second state by said supporting member.

6. An apparatus for manufacturing a disk rotor by charging, and optionally further pressurizing, the molten metal in a cavity defined by first and second metal molds disposed for movement into and out of contact with each other, during at least one pre-form is supported and secured in said cavity, said apparatus comprising;

a core made up by a plurality of annularly arranged split core elements movable along a radial direction; and

supporting parts disposed on inner surfaces of said core elements, said supporting parts being formed in such a manner that, in an opened state of said core when said plural core elements have been moved radially outwards, at least one pre-form can be introduced into a space defined by said core elements; and also in such a manner that, in a closed state of said core when the core elements have been moved to a preset location in a radially inner direction, said supporting parts are configured to hold the outer marginal portion of said at least one pre-form.

7. The apparatus for manufacturing a disk rotor as defined in claim 6 wherein said supporting parts each comprise first and second lugs extending radially inwardly for holding both surfaces of said pre-form of a disk shape.

8. The apparatus as defined in claim 7 wherein said first lug has a surface abutting with an upper mold when the upper mold is at a molding position.

9. The apparatus as defined in claim 7 wherein said second lug has a generally radially extending fin-forming lug arm for forming fin.

10. The apparatus as defined in claim 7 wherein said supporting parts is defined by a bottom surface which comes to hold another pre-form disposed axially distant from said one pre-form when said supporting parts are positioned at a radially inner molding position.

11. The apparatus as defined in claim 7 wherein said supporting parts are configured and disposed such that said one pre-form and said another pre-form are disposed to form a pair of surfaces defining a cavity for molding a molded product.